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Attention: Mr. Lars Olson Art Unit 3617 (703) 308-9807

Re: Application 10/679,534 Hybrid Vee-Hull / Wing-in-Ground Effect Vessel

August 13, 2004

Dear Mr. Olson:

Thank you for the pleasant conversation and clarification of my questions regarding the patent review I received. I have reviewed the detailed action and the patents referenced therein. I truly do not believe there are any conflicts between the existing patents filed and my invention. I have disputed the claim rejections pointing out differences in the referenced patents.

My one concern is the statement made that it would be obvious to one skilled in the art to marry two existing patents and create a new patent. What concerns me is that this concept is more subjective; and, I believe more difficult to argue against. Since I have shown that the existing patents do not individually conflict with my invention I also conclude that it is not possible to combine any of them to create my invention. I have pointed out that in the real world it is not sufficient to simply combine two concepts and make a better product. A lot of engineering and trials have gone into making this vessel one that really does perform as intended. This hull for does have unique properties that were originally envisioned; but, they had to be refined to really make them work.

Thank you for your consideration and for the clarifications you provided. I am very pleased to say that this has been a good experience. I was a bit concerned that I would feel challenged in representing myself without a patent attorney. I am confident this patent will conclude positively and I look forward to filing future patents.

Sincerely,

Roger Guérard

Roger Guérard, NA
President
Sea Island Marine Engineering, Inc.

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Office Action Summary	**Application No.** 10/679,534	**Applicant(s)** GUERARD, ROGER GAMBLE DOUGHTY	
	Examiner Lars A Olson	**Art Unit** 3617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1 and 16 are objected to because of the following informalities: Claims 1 and 16 do not end with a period. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 17 recites the limitation "the means of producing wing in ground effect" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-10 and 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Holderman (US 5,402,743).

Holderman discloses the same hull as claimed, as shown in Figures 1-17, that is comprised of a central hull with a buoyant section and a deep vee bow section with a step, as shown in Figures 1-3, and buoyant outboard chines, defined as Part #15, that extend below said central hull, as shown in Figure 1, and provide a means for trapping air and water in order to provide lift to said hull, as described in lines 33-42 of column 8, and shown in Figure 3. Said outboard chines originate above a waterline of said hull, as shown in Figure 3, and ultimately extend below said waterline as said chines extend aft, also as shown in Figure 3, where said chines become significantly wider as the extend aft, as shown in Figure 4. A space between said chines, as shown in Figure 4, becomes progressively narrower as said chines extend aft in order to create a venturi effect beneath said hull, as described in lines 53-60 of column 8. Said outboard chines also function to reduce wake formation, as disclosed in lines 39-50 of column 7.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holderman in view of Burg (US 5,176,095).

Holderman, as set forth above, discloses all of the features claimed except for the use of outboard chines as a means to house machinery or propulsion drives.

Burg discloses a hull, as shown in Figures 1-8, that is comprised of a central hull and a pair of outboard chines, where said outboard chines are utilized as a means for housing propulsion drives, defined as Part #30, and related machinery.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to utilize a hull with a pair of outboard chines that each house a propulsion drive and related machinery, as taught by Burg, in combination with the hull as disclosed by Holderman for the purpose of providing a watercraft having a hull with a pair of outboard chines with an engine positioned within each of said chines in order to provide greater stability and improved balance and weight distribution for said watercraft.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Burg (US 5,415,120) discloses a watercraft having a hull with a pair of outboard chines that each houses a propulsion drive. Lund (US 5,140,930), Field (US 4,989,534), Fehn (US 4,091,761) and Ferron each disclose a watercraft with a central hull and a pair of outboard chines.

10. Any inquiry concerning this communication from the examiner should be directed to Exr. Lars Olson whose telephone number is (703) 308-9807.

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May 17, 2004

LARS A. OLSON
PATENT EXAMINER

Lars Olson
5/17/04

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Notice of References Cited

Application/Control No. 10/679,534	Applicant(s)/Patent Under Reexamination GUERARD, ROGER GAMBLE DO	
Examiner Lars A Olson	Art Unit 3617	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,415,120	05-1995	Burg, Donald E.	114/67A
	B	US-5,402,743	04-1995	Holderman, Jim D.	114/62
	C	US-5,176,095	01-1993	Burg, Donald E.	114/67A
	D	US-5,140,930	08-1992	Lund, John A.	114/291
	E	US-4,989,534	02-1991	Field, Leonard E.	114/289
	F	US-4,091,761	05-1978	Fehn, Allan J.	114/290
	G	US-1,658,080	02-1928	FERRON LAFAYETTE P	114/290
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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REVIEW OF OTHER PATENTS

Modified Tunnel Hull Boat
Allan J. Fehn US 4,091,761
Patented March 23, 1977

Review:

This patent is for a modified tunnel hull and has three distinct hull sections. It is a modified trimaran with sharply angled outboard pontoons. The center pontoon is designed to allow air to pass around either side of it. The patent is primarily concerned with head winds and tail winds effecting the attitude of the boat. The present invention has one Vee shaped bow, not three, and is concerned with hydrodynamics not aerodynamics. The patent is concerned with the bow rising at high speeds; these boats have a tendency to flip end over end at high speed. The present invention has a single large Vee bow that is designed to cut through waves and is not capable of being flipped over by wind.

Boat Hull Having Stepped Underside
Leonard E. Field US 4,989,534
Patented September 1, 1989

This patent is for a stepped hull "characterized in the provision of a venting tube which extends from the transverse step substantially adjacent or contiguous with the hull underside to form an outlet adjacent to the bow. This patent is concerned with trapped air and suction holding the hull in the water. It provides applications for the venting tube in trimaran and catamaran hulls to ventilate regions under the hull that air that could not otherwise escape. The present invention seeks to trap air to raise the hull out of the water which has much more drag than air. The two concepts are opposing and the present invention is for a hull not a vent tube.

Boat
Lafayette P. Ferron
Patented February 7, 1928

This patent is for a boat hull notably similar to that of Holderman US 5,402,743. It has a Vee bow and Vee shaped chines. The patent provides for a boat " the bottom of which includes a longitudinally, downwardly convexed keel, longitudinally , downwardly convexed chines". As in the review of Holderman, the chines have a single pointed entry and are not capable of producing transverse stability unless the boat is heeled radically or the central hull is immersed. Machinery cannot be placed in the chines and the use of waterjets is not possible with this design.

Patent Office Claim:
Claims 1-10 and 13-17 are rejected under35 U.S.C. 102(b) as being anticipated by

Deep Chine Hull Design
Holderman US 5,402,743
Filed December 20, 1993

Response:

Patent 5,402,743 by Holderman is for a high speed skimming dish with no cargo or displacement capacity or very heavy displacement non-planning vessels. The Holderman hull has a single knuckle chine with a sharp Vee shape, by definition. This shape cannot support much weight to add to transverse stability and is not capable of being lifted on a plane. The Vee shape cuts through water but does not generate any lift in itself. Also, the Vee shape is not capable of housing machinery. Water jets require flat surfaces for intake water which is an impossibility with the Holderman design. Holderman describes the chines of his invention as being deeply rockered and claim no white water between the chines, while the chines of the present invention have a double knuckle with a wide flat bottom to provide both lift and stability and promote turbulent flow, white water. The Holderman patent seeks an academic ideal "to establish and extend laminar flow along the entire length of the hull bottom and sides by a combination of specially contoured lines which maintain consistent hull pressure". The present invention is designed to have the outboard chines as highly loaded planning areas promoting reduced wetted surface while planning. Ultimately the Holderman hull is a trimaran since its centerline hull extends the full length of the vessel and remains in the water at all times. Another difference is that the chines extend back up above the centerline Vee at the transom. The present invention allows for the Vee section to have a pointed entry but the outboard chines remain below the center section in order to trap air and water in a single venturi. The Holderman patent has two separate and distinct venturis, one on either side of the centerline Vee hull. In practice, the present invention is a practical application of physics to enhance vessel stability and reduce drag while reducing machinery encroachment on vessel interior space. These are real world issues not addressed by Holderman.

Patent Office Claim:

Patent 5,176,095 by Berg discloses a hull that is compromised of a central hull and a pair of outboard chines where said outboard chines are used as a means of housing propulsion drives and related machinery. Therefore it is obvious to one of ordinary skill in the art at the time of invention to place machinery in the outboard chines.

Multiple Hull Air Ride Boat
Berg US 5,176,095 and 5,415,120
Patented July 10, 1991 and November 12, 1993

Response:

Patent 5,176,095 by Berg in which Berg describes the patent as a marine vessel that includes pressurized supporting gas cushions in catamaran like side hulls. The invention includes a centerline bow that adds to stability in rough seas. The Berg patent has "pointed bow boat shaped side hulls". The centerline bow is not a displacement bow and offers no buoyancy. The bow is distinct and does not connect with the outboard catamaran hulls as shown in Figure 7 of his patent. Berg correctly describes his vessel as a catamaran with cushions attached below and between the hulls to trap injected pressurized gas. Berg states "These inventions require the introduction of pressurized gas into a recess in the underside of the boat to increase operating speeds and load carrying capacity and improve stability." Berg also shows a configuration of his patent with catamaran hulls extending well in front of the small centerline Vee section which is well above the waterline. The centerline Vee section of Berg's patent has no potential for living space and is suitable for storing an anchor. This vessel is an air cushion and is not a planning or displacement craft. A notable portion of the patent describes the gas injection machinery, flaps and skirts, and hull chines with 5 knuckle points. Machinery location in Bergs patent is a simple result of the reality that no other space exist for the housing of machinery. Berg's patent is for a specialized hull with benefits primarily for the military and has no practical application for recreational boaters.

Patent Office Claim:

It would be obvious to one of ordinary skill in the art at the time of invention to place machinery in the outboard chines, as taught by Berg, in combination with the hull as disclosed by Holderman for the purpose of providing a watercraft having a hull with a pair of outboard chines with an engine positioned within each of said chines in order to provide greater stability, improved balance, and weight distribution.

The goals of providing greater stability, improved balance and weight distribution are solely a concern of the present patent as put forth by R. Guerard. Only the present patent provides for a displacement Vee bow suitable for living space as well as hydrodynamic properties. Holderman's patent has one fundamental and prevailing objective "introducing extended laminar flow" and substantially reducing wave making boat hull resistance. This is completely contrary to the present invention whose purpose is to introduce turbulent water and air and channel it. The Berg hull is a catamaran which has external machinery to artificially introduce turbulent flow and employs skirts to capture that flow, not direct it. It has been clearly shown that neither of these patents relates to the present invention. As such, the notion of a marriage between the Holderman and Berg patents to product a functional product, and especially the present invention, is not possible. The fact that no such vessel exists on the water today, and has never been presented in the past, is absolute testimony that this vessel is a unique engineered and tested product. The present invention is not an obvious application of two, three, or even four other patents. In real world physics it is not possible to randomly toss good ideas in a blender and come out with a superior product. Every part of boat design requires compromise. A working product requires proper engineering. This invention stands alone in its class and stands on its own merit.

Catamarans place machinery in their hulls because that is the only location available. The present invention is a marriage of technologies mating a deep Vee bow and forward hull with deep wide outboard chines that ideally have a flat bottom allowing for both propulsion machinery and water jets to be installed in the chines. The chines are not distinct enough to be separate pontoons like a catamaran. It is possible to place the machinery in the center section of the present invention. The chines are designed to provide buoyancy in the aft sections while the centerline hull may provide some, little, or no buoyancy aft. The centerline Vee hull provides buoyancy forward. The underwater volume of the present invention is ideally suited for placing machinery in the chines because the buoyancy provided by the chines is designed to match the machinery weight and location. Also, placing machinery in the deeper chine reduces encroachment on the vessel interior and enables the engine to be directly mated to the propulsion drive while enhancing stability. There is no need for a propeller or drive shaft between the engine and propulsion unit. The flat sections of the chines aft notable improve safety by keeping the bow down in rapid acceleration from non planning speeds to planning speeds. These advantages are not available to deep Vee hull forms or Vee hulled catamarans.

Claims

1. A hull for conveyance across a fluid compromising:
   a) a central hull with a buoyant section
   b) outboard chines which extend below said central hull providing a means to trap air, water, or a mixture of air and water, providing lift to the hull.

   2. The hull of claim 1 wherein said central hull has a deep vee bow section providing a means for reducing motions in a seaway.

   3. The hull in claim 1 wherein said deep vee bow is adjusted in depth and width as a means for providing longitudinal stability to the hull.

4. A hull for conveyance across a fluid compromising:
   a) a central hull with a buoyant section
   b) outboard chines which extend below said central hull providing a means to trap air, water, or a mixture of air and water providing lift to the hull
   c) said outboard chines provide buoyancy to the hull.

      5. The hull of claim 4 wherein said outboard chines originate above the waterline in the bow of said central hull ultimately extending below the waterline as the chines transition aft.

      6. The hull of claim 4 wherein said outboard chines become significantly wider as they transition aft.

      7. The hull of claim 4 wherein the open space between said outboard chines becomes narrower as the chines transition aft creating a means of funneling air and water.

8. The hull of claim 4 wherein the width and depth of said outboard chines are adjusted as a means to provide a smoother ride in a seaway.

9. The hull in claim 4 wherein the width and depth of said outboard chines are adjusted as a means to adjust transverse stability of the hull.

10. The hull in claim 4 wherein the width and depth of said outboard chines are adjusted as a means to adjust longitudinal stability of the hull.

11. The hull in claim 4 wherein the width and depth of said outboard chines is adjusted as a means to house machinery.

12. The hull in claim 4 wherein said outboard chines are designed as a means to house water jets or other propulsion drives.

13. The hull in claim 4 wherein said outboard chines are designed as a means to produce stern wake canceling effects.

14. A hull for conveyance across a fluid compromising:
    a) a central hull with a buoyant forward section
    b) outboard chines which extend below said central hull providing a means to trap air, water, or a mixture of air and water, or a mixture of air and water providing lift to the hull
    c) said outboard chines provide buoyancy to the hull
    d) said central hull provides a means of generating lift while moving across a fluid.

15. The hull of claim 14 wherein said central hull has a deep vee forward section which becomes notably shallower and transitions into a flat or concave section as it extends aft to the transom of the hull.

16. The hull in claim 14 wherein the aft portion of said central hull is designed as a means to produce a wing in ground effect.

17. The hull of claim 14 wherein a means of producing wing in ground effect is enhanced or produced by adding a step in said deep vee bow.